NEW HAMPSHIRE

Title	Year
FOREST HEALTH CONDITIONS IN NEW HAMPSHIRE	1992

Key Words
gypsy moth, hemlock looper

FOREST HEALTH CONDITIONS

IN NEW HAMPSHIRE

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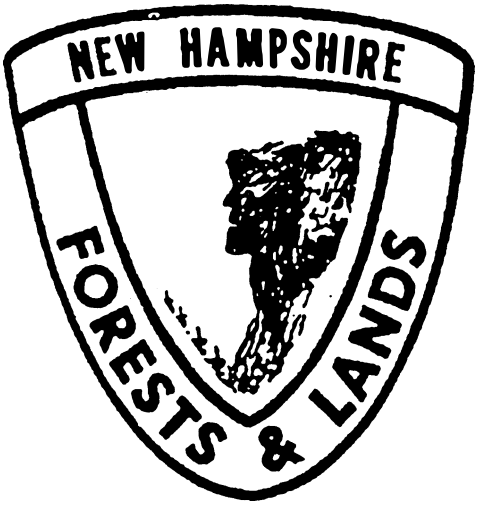

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SUMMARY/HIGHLIGHTS

The general condition of New Hampshire's forest in 1992 was healthy. Insect and disease levels remained stable or decreased slightly. The forest type groups which experienced the most activity were the oak types, where gypsy moth defoliated over 182,000 acres, and the hemlock type, in which hemlock looper defoliated about 4,000 acres. The population trends of both insects are declining. There were 380 fires that destroyed 347 acres of timberland in 1992.

WHITE PINE/RED PINE/HEMLOCK

Forest Health Monitoring data taken on eastern white pine during the 1992 season showed it was in good condition, although white pine continues to be affected by white pine blister rust and the white pine weevil. White pine was examined on the Forest Health Monitoring Bioindicator plots to learn if ozone was affecting the sites. Two FHM sites, Harrisville and Plainfield, had white pine that showed positive symptoms of low level ozone. These may not have been the only sites in the program affected by ozone, but due to scheduling, these were the only two plots with observable symptoms at the time of a visit.

A big accomplishment in 1992 was to get the last of the white pine blister rust maps inventoried and sent to archives. White pine blister rust maps were hand drawn by field crews conducting the ribes eradication program between 1917 and 1975. The maps are now safely stored at the State of New Hampshire Archives Department and readily accessible to foresters, land surveyors, historians or anyone else interested in the details these maps provide.

Hemlock looper, Lambdina athesaria Walker, continued to be a problem on hemlock in 1992, although this insect's impact was not as great as in 1990 and 1991. The defoliation ranged from Cheshire County into Hillsborough County, with an additional 50 acres defoliated in New Ipswich. Total light, moderate and heavy defoliation in 1992 was about 4,000 acres. In 1992 new defoliated areas were discovered east of existing sites. Some hemlocks that had two years of defoliation experienced dead tops or crown dieback.

In 1992, New Hampshire continued to monitor it's four Hemlock Looper Impact Plots in Fitzwilliam, Keene, Swanzey and Richmond. In June, hemlock branch samples were collected and shipped to a laboratory of the Maine Forest Service. There an egg wash technique was used to count eggs per branches. The lab reported that NH's branch samples had a high number healthy eggs: 182 eggs per 30" branch. In October, hemlock on the plots were rated for defoliation, dieback, transparency and crown density. The defoliation that occurred was light and not reflective of what was expected based on the egg sampling. Thirty-seven percent of the hemlocks surveyed had experienced branch dieback, but there was no mortality as a result of hemlock looper feeding on these sites.

A population survey conducted to count the number of pupae overwintering in the duff indicated the population had collapsed; a total of seventeen live pupae were found for all sites. This number was down from 1991, in which 140 live pupae were found.

Table 1 shows a comparison of averages of the major variables looked at in 1991 and 1992.

	1991	1992
VIGOR	most trees good	most trees good
DEFOLIATION	25%	05%
TRANSPARENCY	40%	10%
DENSITY	70%	75%
DIEBACK	05%	05%

Comparison of the four plots surveyed indicated that Swanzey had the most trees in the good and fair categories. The trend for hemlock looper is expected to go down in 1993.

There was continued monitoring for hemlock woolly adelgid at 30 sites in southwestern New Hampshire (see map 1). All sites were examined and no evidence of HWA was found.

The Forest Pest Advisory Group began developing an action plan and compliance agreement in 1992. The action plan is designed to restrict the spread of HWA upon it's initial detection within the state. The purpose is to outline what is to be done when HWA is detected in a noncommercial forest situation. The compliance agreement and the quarantine are still in the draft stage.

BEECH/BIRCH/MAPLE (NORTHERN HARDWOOD)

In July and August of 1992 there were about 50 acres of hardwoods in Grafton County near Mt. Cardigan, and in Carroll County, North Conway, that experienced leaf browning, premature senescence and some mortality. Seedlings, saplings and mature trees were affected. The area was flown to determine if there was a topographic pattern that could be related to the defoliation. It was also examined for causal agents; environmental factors were a possible cause.

In 1992 the North American Sugar Maple Project was expanded to include four new areas in addition to the six that have been monitored since 1989. Plots were added in Littleton, Warren, Langdon and Acworth. Results of the 1992 field season indicated that the sugar maple on the original six plots had improved in overall condition from the previous years of study. According to the project more than 90% of sugar maples were considered healthy. It was also concluded that the conditions in sugar maple stands managed for sap production were essentially no different than the conditions in undisturbed stands.

OAK/PINE AND OAK/HICKORY

The gypsy moth, Lymantria dispar, outbreak in the oak types continued, but decreased in acreage defoliated (see map 2). The total acreage defoliated in 1992 was 182,575; this was down from 211,000 acres in 1991. There were more trees in the moderate than heavy defoliation categories in 1992. The defoliation was limited to six counties: Belknap, Carroll, Hillsborough, Merrimack, Rockingham and Strafford. Rockingham and Strafford Counties had the highest amount of defoliation. The trend for gypsy moth is to continue downward.

SPRUCE/FIR

The spruce/fir type was also healthy in 1992. There was an isolated incidence of Balsam Bark Weevil, Pissodes dubius Randall, causing mortality on balsam fir in Dummer. The Balsam Bark Weevil is noted for being a secondary pest after SBW defoliation. This was the first reported incidence of balsam fir mortality caused by this insect following New Hampshire's recent SBW outbreak.

Spruce Budworm was monitored with pheromone traps in northern New Hampshire. The trap catches showed no sign of significant population present. In 1992 ten moths were caught, this followed six years when no moths were caught. Therefore, this population trend is slightly up.

HARD PINE

The hard pine type group is a very small component of New Hampshire forests and

has no serious insect or disease problems to report in 1992.

ELM/ASH/RED MAPLE

In 1992 there was a noticeable amount of declining white ash scattered throughout the state. It was a heavy seed year for white ash and the stress of this, combined with other factors, may have caused the decline. This occurrence is still being investigated.

ASPEN/BIRCH

The aspen/birch type received some defoliation by the gypsy moth. Otherwise, there were generally no serious insect or disease problems.

FOREST HEALTH MONITORING

The Forest Health Monitoring program successfully completed it's third year. In 1992 crown conditions that were measured included: live crown ratio, density, transparency and dieback. Accompanying the regular FHM crew to one-third of the forested plots was a soil scientist who dug soil pits to determine profile characteristics and collected samples for chemical analysis. The purpose of soil sampling was to get a baseline assessment of soil productivity. Analysis of the soil data has not yet been completed, however, results from the tree condition rating should be available soon.

For baseline information on the conditions of New Hampshire's forests refer to: Trends and Responses:A Forest Health Report, 1850-1992, by A.Avery and J.Bofinger.

For more information about forest health conditions, the following reports are available: Sugar Maple Crown Conditions Improve Between 1988-1992, by Millers, Allen, Lachance and Cymbala.

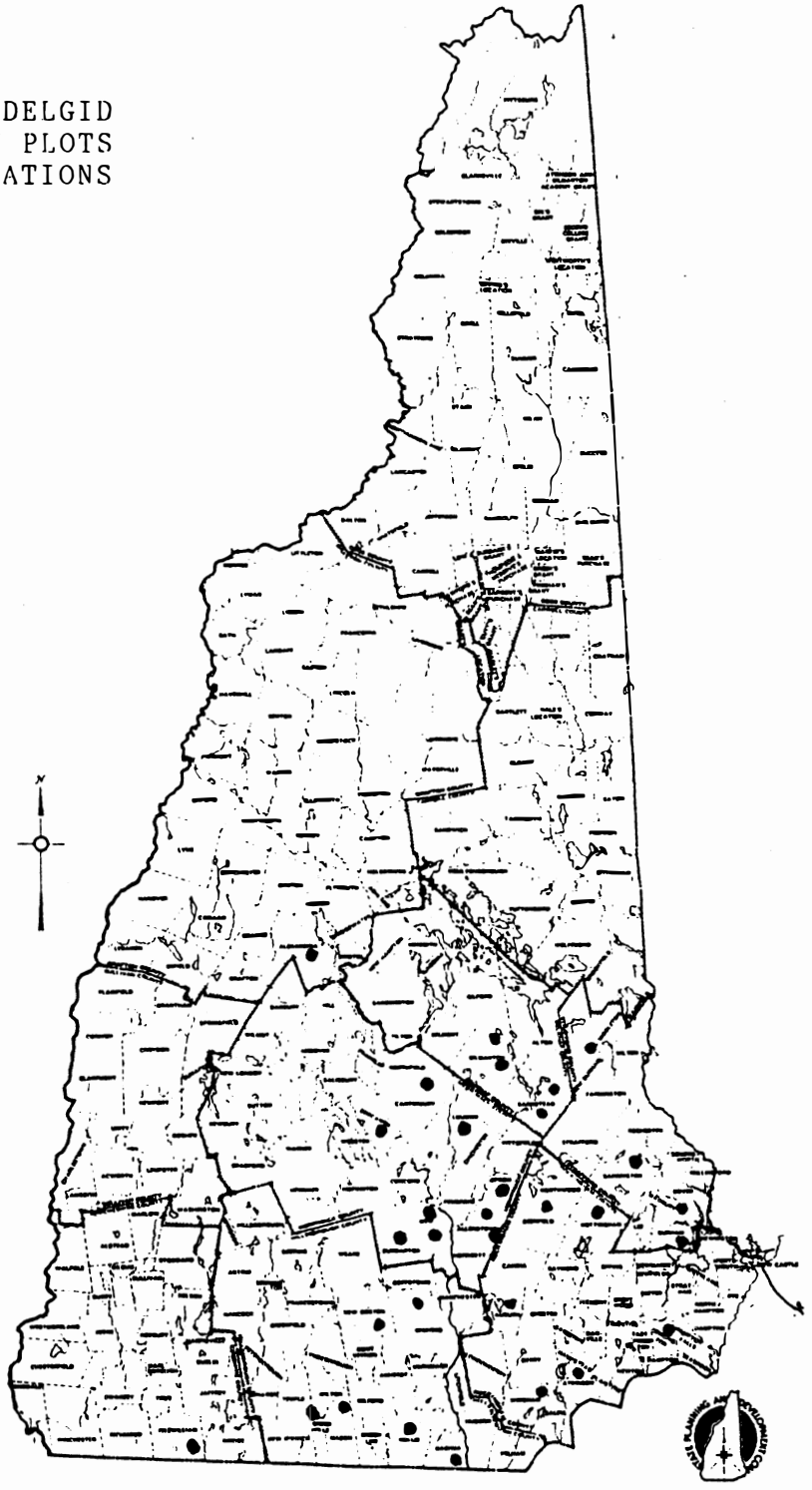
Northeastern Area Forest Health Report, USDA-FS,NA-TP-03-93.

Forest Health Monitoring in New England:1990 Annual Report, USDA-FS, NE-125.

These publications are available from the Division of Forest and Lands, Insect and Disease section.

NEW HAMPSHIRE

HEMLOCK WOOLLY ADELGID
DETECTION SURVEY PLOTS
● =1992 PLOT LOCATIONS

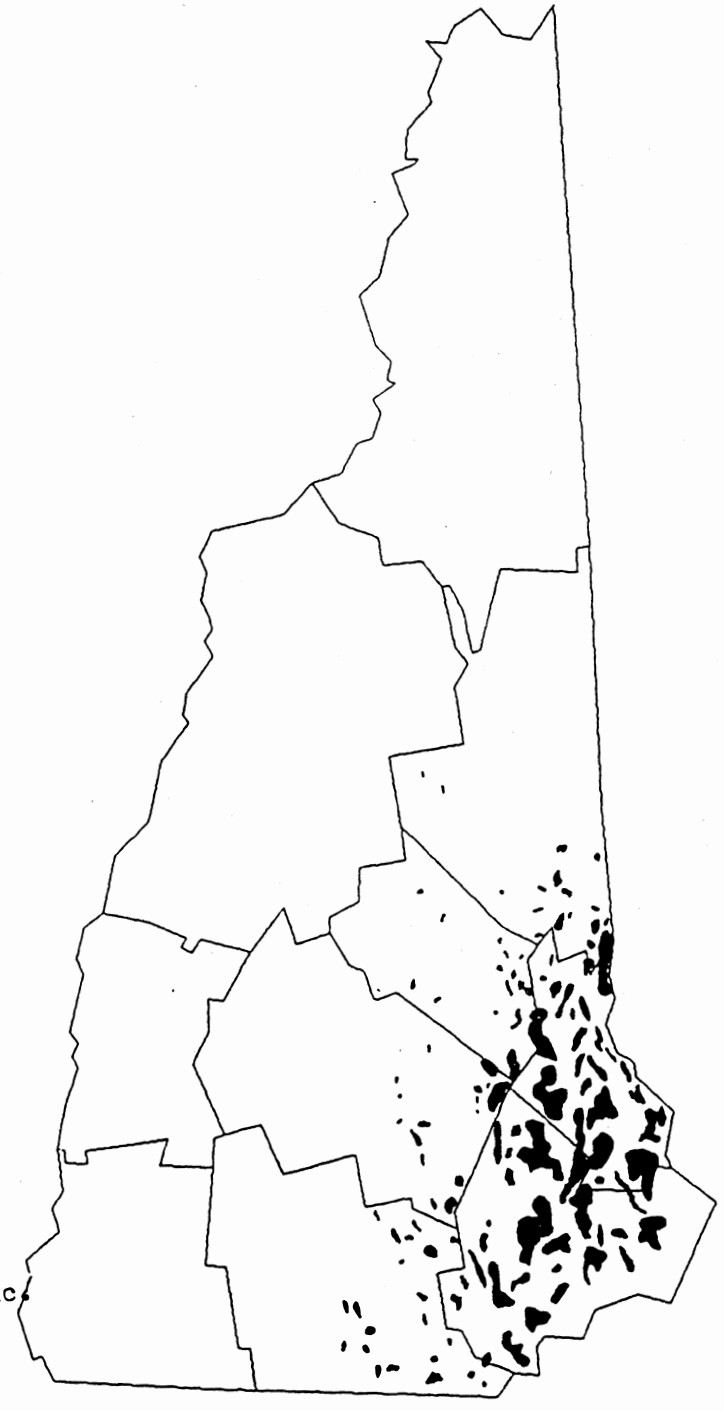


BASE MAP PREPARED BY THE NEW HAMPSHIRE STATE PLANNING AND DEVELOPMENT COMMISSION

1992

MODERATE AND HEAVY

GYPSY MOTH DEFOLIATION IN NEW HAMPSHIRE



= DEFOLIATED AREA

TOTAL DEFOLIATED ACRES= 182,575 ac.

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